



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/699,985	11/03/2003	Timothy E. Ostromeck	019937.0414 (ET 01-12)	5305

29053 7590 06/08/2007
FULBRIGHT & JAWORSKI L.L.P
2200 ROSS AVENUE
SUITE 2800
DALLAS, TX 75201-2784

EXAMINER

KRASNIC, BERNARD

ART UNIT	PAPER NUMBER
----------	--------------

2624

MAIL DATE	DELIVERY MODE
-----------	---------------

06/08/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/699,985

Applicant(s)

OSTROMEK ET AL.

Examiner

Bernard Krasnic

Art Unit

2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 April 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. The amendment filed 4/03/2007 have been entered and made of record.

2. In response to the amendments filed on 4/03/2007:

The "Objections to the specification" have been entered and therefore the Examiner withdraws most of the objections. The Applicant has not entered one object to the specification from the original Non-Final Office Action and therefore the Examiner once again has addressed the issue below.

The "Objections to the claims" have been entered and therefore the Examiner withdraws the objections to the claims.

3. Applicant's arguments filed 4/03/2007 have been fully considered but they are not persuasive.

The Applicant alleges, "Claim 1 recites, in part ..." in page 10, and states respectively that the reference Spight does not teach or disclose the limitation of "performing a first optical transform on the light to yield a first optically transformed light ... [and] generating a first metric in accordance with the first optically transformed light ..." and also states respectively that Spight's teaching of a Fourier transform does not meet the claimed "metric". However the Examiner disagrees, as the Examiners initial rejection stated, the first metric is Spights $F_o(x,y)$ [two dimensional Fourier transformed signal] and the second metric is Spights $I_R(x,y)$ [two dimensional Fourier transformed

Art Unit: 2624

signal] and the Applicants specification clearly states that "a metric may comprise, for example a matrix that describes particular features of an image" in page 7, lines 11-12.

This two dimensional Fourier transform signal specifically is a matrix describing particular frequency components [Fourier transform generates a frequency domain analysis] features of the input scene image signal which therefore satisfies the Applicants general meaning of a metric.

The Applicant alleges, "The plain language of claim 1 ..." in pages 10-11, and states respectively that the reference Spight does not teach or disclose generating a first metric "in accordance with" the first optically transformed light because the terms "optically transformed light" and "metric" mean different things and the two terms don't equate to each other. However the Examiner disagrees, to describe how the reference Spight teaches these limitations, the Examiner must discuss how Spights system operates. Initially Spight receives incoherent light signals 11 and 13 or coherent light signals $o(x,y)$ and $r(x,y)$ [see Spight, Fig. 1] which comprise of scene information and performs a first optical transform / Fourier transform using the optical lens systems 30 and 32 to generate the optically transformed light / Fourier transformed signals $Fo(x,y)$ and $IR(x,y)$ [via lens system] which are two dimensional signals represented by a matrix describing frequency components of the scene input image. These Fourier transformed signals [$Fo(x,y)$ and $IR(x,y)$] via the lens system are understood by the Examiner to be the Applicants first and second optically transformed light. The Applicants next limitation reads that a metric is generated "in accordance with" the optically transformed light, and the Examiner has read Spight to teach that the metric is just the same as the

Art Unit: 2624

optically transformed light; they are equal. Therefore, the metric is just the equivalent Fourier transformed signals $F_o(x,y)$ and $I_R(x,y)$. The claim limitation only reads that "the metric is generated in accordance with the optically transformed light", it doesn't read how and therefore the assumption that the two are equivalent is applicable and maintained. The Applicant has referred to the specification where it is stated that the optically transformed light 30a-b of Fig. 1 is used to generate the metric by using the sensors 32a-b of Fig. 1 and processors 34a-b of Fig. 1. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., the sensors and processors to generate the metric) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). The claimed limitation only states that the metric is generated "in accordance with" the optically transformed light, and once again, the Examiner's reason for equivalency between the optically transformed light / Fourier transformed signals and the metric / Fourier transformed signals is applicable to the limitation "in accordance with" and therefore the rejection is maintained.

The Applicant alleges, "Accordingly, the 35 U.S.C. 102(b) rejections ..." in page 11, and states respectively that similarly like claim 1, the rejections for claims 8, 15, and 16 should also be withdrawn. However the Examiner disagrees because as discussed above, the rejection to claim 1 is maintained and similarly the rejections to claims 8, 15, and 16 are also maintained.

The Applicant alleges, "Dependent claims 2-5, 7, 9-12, and 14 depend ..." in page 11, and states respectively that the claim rejections to dependent claims 2-5, 7, 9-12, and 14 should be withdrawn because Spight doesn't disclose the limitations to the independent claims. However the Examiner disagrees because as discussed above, the rejections to the independent claims are maintained and therefore the claim rejections on dependent claims 2-5, 7, 9-12, and 14 are also maintained similarly.

The Applicant alleges, "For example, claim 3 ..." in page 11, and states respectively that Spight doesn't teach or disclose "the first optical transform is compatibly different from the second optical transform" but teaches Fourier transform lenses. However, as discussed in the rejection for claim 3, the Fourier transform lenses 30 and 32 [see Spight, Fig. 1] are compatibly different because no two lenses could be exactly the same, there will always be some type of micro-difference if no bigger difference could be noticed. This little difference between the two Fourier transform lenses 30 and 32 results in two "compatibly different" Fourier transforms. Lens 30 is used as the first optical transform [Fourier Transform via lens] and lens 32 is used as the second compatibly different [lenses compatibly different by structure] optical transform [Fourier Transform via lens]. Therefore, the rejections on claims 3 and similarly claim 10 are maintained.

The Applicant alleges, "Claim 5 recites ..." in page 12, and states respectively that Spight does not teach or disclose the generation of the first and second metric and fusing the two metrics to yield a processed metric. However the Examiner disagrees because as discussed above, the reference Spight does disclose the generation of the

Art Unit: 2624

two metrics "in accordance with" the optically transformed light and also does disclose fusing these two references to yield a processed metric [Spight teaches taking the square sum of the two metrics $IR(x,y)$ and $Fo(x,y)$] as discussed in the art rejection for claim 5]. Therefore the claim rejections to claim 5 and similarly to claim 12 are maintained.

The Applicant alleges, "Claim 6 recites ..." in page 12, and states respectively that Spight does not teach or disclose the generation of the first and second metric and detecting a target using the processed metric. However the Examiner disagrees because as discussed above, Spight does teach and disclose the generation of the first and second metric "in accordance with" the optically transformed light. The Examiner does agree that Spight does not teach or disclose detecting a target using the processed metric and that is why the Examiner used a secondary reference Schneider in the 35 U.S.C. 103 rejection in the original Non-Final Office Action. Therefore the claim rejections to claim 6 and similarly to claim 13 are maintained.

The Applicant alleges, "Claim 7 recites ..." in page 12, and states respectively that Spight does not teach or disclose the generation of the first and second metric. However the Examiner disagrees because as discussed above, the reference Spight does disclose the generation of the two metrics "in accordance with" the optically transformed light. Therefore the claim rejections to claim 7 and similarly to claim 14 are maintained.

The Applicant alleges, "V. Claim Rejections Under 35 U.S.C. 103(a) ..." in pages 12-15, and states respectively that the secondary reference is non-analogous art and

Art Unit: 2624

has insufficient motivation for combination, and that the combination still doesn't teach or disclose the generation of the two metrics. Firstly the Examiner disagrees that the reference Spight doesn't disclose the generation of the two metrics because as discussed above, Spight does disclose the generation of the two metrics "in accordance with" the optically transformed light. Secondly, the Examiner disagrees that the two art references are non-analogous. In response to applicant's argument that the two references Spight and Schneider are nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, Schneider discloses pattern recognition using the two dimensional Fourier transform for a given scene, both Schneider and Spight disclose using the two dimensional Fourier transform and therefore the two art references are definitely in the same field of endeavor. Therefore Schneider's teachings of using pattern recognition using the Fourier Transform to include the capability of detecting a target using Spights processed metric [Spight teaches taking the square sum of the two metrics $IR(x,y)$ and $Fo(x,y)$] in order to incorporate the capability of performing pattern recognition [see Schneider, col. 25, lines 16-25] is still applicable and maintained. Even if the references of combination are not in the same field of endeavor, the combination still may hold true when a person of ordinary skill can implement a predictable result. "When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it,

Art Unit: 2624

either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, 35 U.S.C. 103 likely bars its patentability". See *KSR International Co. v Teleflex Inc.*, 550 US ____ 2007, pp. 13. Thirdly the Examiner disagrees that there is insufficient motivation. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Schneider discloses the motivation to incorporate the teachings. Schneider's teachings of using pattern recognition using the Fourier Transform to include the capability of detecting a target using Spights processed metric [Spight teaches taking the square sum of the two metrics $IR(x,y)$ and $Fo(x,y)$] in order to incorporate the capability of performing pattern recognition [see Schneider, col. 25, lines 16-25] is still applicable and maintained. The Applicant also argues that Schneider's system utilizes mechanical ultrasonic waves whereas Spight utilizes optical waves and therefore there is not sufficient motivation to combine. However, as discussed above, there is still motivation to combine. But for argument purposes and to further clarify the teachings of the art to one of ordinary skill in the art, an ultrasonic system can easily be substituted for an X-Ray system which is an electro-optical system [see Carrot et al (US 6,909,792 B1), col. 1, lines 25-28, lesions in the breast are targeted using an ultrasonography or

Art Unit: 2624

equivalently using the X-Ray, targets are easily tracked using various techniques in the art]. Therefore, the claim rejections to claim 6 and similarly to claim 13 are maintained.

Specification

4. The disclosure is objected to because of the following informalities:

Page 10, line 20: "from processors 32a-b" should be -- from processors 34a-b --.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-5, 7-12, and 14-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Spight et al (US 4,462,046).

Re Claims 1, 8, and 15 respectively: Spight, as recited in claim 1, discloses a method / machine vision system for processing image information (see Fig. 1, title of invention, col. 1, lines 46-49 and 67-68), comprising receiving light / incoherent light signals (11, 13) or coherent light signals ($o(x,y)$ and $r(x,y)$) comprising image information / scene information (see Fig. 1, col. 2, lines 35-57, col. 4, lines 27-28 and 44-45); performing a first optical transform / Fourier Transform via an optical lens system (30) on the light to

Art Unit: 2624

yield a first optically transformed light / $F_o(x,y)$ (see Fig. 1, col. 2, lines 50-57, col. 4, lines 27-37); performing a second optical transform / Fourier Transform via an optical lens system (32) on the light to yield a second optically transformed light / $IR(x,y)$ (see Fig. 1, col. 2, lines 50-57, col. 4, lines 43-50); generating a first metric / $F_o(x,y)$ in accordance with the first optically transformed light (see Fig. 1, the metric is the Fourier Transformed signal $F_o(x,y)$ itself); generating a second metric / $IR(x,y)$ in accordance with the second optically transformed light (see Fig. 1, the metric is the Fourier Transformed signal $IR(x,y)$ itself); processing the first metric and the second metric to yield a processed metric / square sum of $IR(x,y)$ and $F_o(x,y)$ (see Fig. 1, col. 2, lines 50-64, col. 4, lines 56-63, col. 5, lines 2-19); and performing an inverse optical transform / Inverse Fourier Transform via an optical lens system (36) on the processed metric to process the image information of the light (see Fig. 1, col. 2, lines 64-68, col. 3, lines 1-6, col. 4, lines 42-48).

As to claim 8, it differs from claim 1 in that claim 1 is a method claim whereas claim 8 is a system claim. Therefore, all the limitations in claim 8 respectively are analyzed and taught by Spight in the same manner Spight taught claim 1 above.

As to claim 15, it differs from claim 1 in that claim 1 is a method claim whereas claim 15 is a means plus function system claim. Therefore, all the limitations in claim 15 respectively are analyzed and taught by Spight in the same manner Spight taught claim 1 above.

The limitations, as recited in claim 15, "means for receiving light" in line 3, "means for performing" in lines 5 and 7, "means for generating" in lines 9 and 11,

Art Unit: 2624

"means for processing" in line 13, and "means for performing" in line 15, invoke 35 USC 112, 6th paragraph.

Re Claims 2 and 9 respectively: Spight, as recited in claim 2, discloses the first optical transform / Fourier Transform via an optical lens system (30) is substantially similar to the second optical transform / Fourier Transform via an optical lens system (32) (see Fig. 1, col. 2, lines 54-57, both the optical lens systems perform Fourier transform).

As to claim 9, it differs from claim 2 in that claim 2 is a method claim whereas claim 9 is a system claim. Therefore, all the limitations in claim 9 respectively are analyzed and taught by Spight in the same manner Spight taught claim 2 above.

Re Claims 3 and 10 respectively: Spight, as recited in claim 3, discloses the first optical transform / Fourier Transform via an optical lens system (30) is compatibly different from the second optical transform / Fourier Transform via an optical lens system (32) (see Fig. 1, col. 4, lines 33-37).

Although the compatibly different limitation is silent in Spight, it is an inherent feature because each of the two lenses 30 and 32 could have a different focal length making them compatibly different.

As to claim 10, it differs from claim 3 in that claim 3 is a method claim whereas claim 10 is a system claim. Therefore, all the limitations in claim 10 respectively are analyzed and taught by Spight in the same manner Spight taught claim 3 above.

Art Unit: 2624

Re Claims 4 and 11 respectively: Spight, as recited in claim 4, discloses the first optical transform comprises a first Fourier transform / Fourier Transform via an optical lens system (30); and the second optical transform comprises a second Fourier transform / Fourier Transform via an optical lens system (32) (see Fig. 1, col. 2, lines 54-57, both the optical lens systems perform Fourier transform).

As to claim 11, it differs from claim 4 in that claim 4 is a method claim whereas claim 11 is a system claim. Therefore, all the limitations in claim 11 respectively are analyzed and taught by Spight in the same manner Spight taught claim 4 above.

Re Claims 5 and 12 respectively: Spight, as recited in claim 5, discloses selecting first data / $F_o(x,y)$ from the first metric; selecting second data / $I_R(x,y)$ from the second metric; and fusing / square sum of $I_R(x,y)$ and $F_o(x,y)$ the first data and the second data to yield the processed metric / square sum of $I_R(x,y)$ and $F_o(x,y)$ (see Fig. 1, col. 2, lines 50-64, col. 4, lines 56-63, col. 5, lines 2-19).

As to claim 12, it differs from claim 5 in that claim 5 is a method claim whereas claim 12 is a system claim. Therefore, all the limitations in claim 12 respectively are analyzed and taught by Spight in the same manner Spight taught claim 5 above.

Re Claims 7 and 14 respectively: Spight, as recited in claim 7, discloses generating an image from the processed metric (see col. 2, line 68, col. 3, lines 1-6); and displaying / monitor (200) the image (see Figs. 1 and 4, col. 3, lines 1-6).

As to claim 14, it differs from claim 7 in that claim 7 is a method claim whereas claim 14 is a system claim. Therefore, all the limitations in claim 14 respectively are analyzed and taught by Spight in the same manner Spight taught claim 7 above.

Re Claim 16: The limitation "a procedure selected from the group of a first procedure and a second procedure" is referred to as a Markush group and this Markush group recites choosing either the first procedure or the second procedure to process the first metric and the second metric. Therefore, while considering the first procedure for fusing, all the limitations respectively are analyzed and taught by Spight in the same manner as Spight taught claims 1-5, and 7 above.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 6 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Spight as applied to claims 1 and 8 above, and further in view of Schneider et al (US 5,224,174).

However, Spight fails to disclose or fairly suggest detecting a target using the processed metric.

Schneider, as recited in claim 6, discloses generating the processed metric / using spatial filter in response to the first metric and the second metric; and detecting a target / fingerprint pattern recognition using the processed metric (see col. 25, lines 16-25 and 47-56).

As to claim 13, it differs from claim 6 in that claim 6 is a method claim whereas claim 13 is a system claim. Therefore, all the limitations in claim 13 respectively are analyzed and taught by Schneider in the same manner Schneider taught claim 6 above.

Therefore, in view of Schneider, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Spight's method by including the capability of detecting a target using the processed metric to the processor that yields the processed metric in order to incorporate the capability of performing fingerprint pattern recognition [see Schneider, col. 25, lines 16-25].

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

Art Unit: 2624


the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bernard Krasnic whose telephone number is (571) 270-1357. The examiner can normally be reached on Mon-Thur 8:00am-4:00pm and every other Friday 8:00am-3:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jingge Wu can be reached on (571) 272-7429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Bernard Krasnic
May 24, 2007



JINGGE WU
SUPERVISORY PATENT EXAMINER